

XII.—*New Genera and Species of British Spiders.*

By the Rev. F. O. PICKARD-CAMBRIDGE.

[Plates I. & II.]

THERE seem to be few signs as yet of much interest awakening in the direction of the study of British spiders, notwithstanding that so rich a field of possibilities lies before the enterprising student.

Mr. L. Greening, of Warrington, has, however, sent some nice little collections for examination and naming, and amongst these there were several fine specimens of *Epeira alsine*, Walek.

From Ben Nevis, Scotland, Mr. Edward Whymper has forwarded a fine new species, *Lepthyphantes Whymperi*, while six other new species were either taken by myself or received from other collectors.

For the reception of two of these it has been considered necessary to form new genera, *Hillhousia* and *Coryphæus*.

These, together with *Cryphæca diversa*, Cb., taken by the present writer near Carlisle, make in all eight new species, including two new genera, added to the British list since my last communication of November 1892.

I am unable to claim that these finds are altogether the result of hard work, but have been secured chiefly by bottling a few specimens here and there during casual visits to different parts of the country.

To Mr. F. M. Campbell, of Hoddesdon, Dr. R. H. Meade, of Bradford, and the Rev. O. Pickard Cambridge I am much indebted for their kindness in furnishing me with the materials necessary for thoroughly investigating the identities of the various species of *Porrhomma*, of which a detailed account appears in this paper.

There can be little doubt that the Lake Districts will continue for many years to furnish new species of spiders, more especially, no doubt, of those belonging to the genera *Porrhomma* and *Tmeticus* and other kindred forms.

Two new Genera and eight new Species.

CORYPHÆUS, gen. nov.

Coryphæus glabriceps, sp. n. (Pl. I. fig. 2.)

Length of adult male $1\frac{1}{4}$ line.

Cephalothorax oval-elongate; caput smooth, shining, glabrous, with a single curved hair springing from the centre

behind the ocular area, convex, not raised, depressed in front, broad, bluffly rounded.

Clypeus very high, half as high again as the ocular area, projecting slightly forwards, smooth, shining.

Falces twice as long as clypeus, convex at base, inclined beneath the cephalothorax, slightly attenuate and divergent at the apex, furnished on the inner side with a short bristle on either side, and lower down at the angle with a short sharp tooth, its apex set with two fine bristles. Upper margin of fang-groove furnished with five very minute teeth. Fang stout, circular. Basal joint striated on outer side.

Eyes.—Posterior row straight; eyes equal, equidistant, one and a half (almost) diameters apart. Anterior row slightly curved, convexity forwards; centrals slightly smaller, close together, less than half a diameter apart, one full diameter from laterals (fig. 2 d).

Sternum as long as broad, brown, set with fine black hairs, not very convex, terminating behind between the coxal joints of the fourth pair of legs in a depressed conical point.

Maxille and *labium* similar to *Tmeticus*.

Legs 4, 1, 2, 3, pale yellow, clothed with fine hairs. Femora without any spines; genual joints with a single, very small, oblique bristle at apex; tibiæ i., ii., iii. with two very fine oblique bristles on the upperside, iv. with a single one on the basal third of the joint. Metatarsi without any spines or bristles.

Abdomen black, glossy, clothed with short, fine, stiff curving hairs.

Palpus short; cubital joint short, convex; radial longer and broader, globular-convex, granulose, set with fine hairs on the outer side, anterior margin produced into a sharp thorn-like spur, its point depressed on the base of the digital joint (*c*); its inner anterior margin prolonged into a broad, black, rounded prominence, whose apex terminates in a short sharp point (*e*). Digital joint short, convex, shining, produced at base on inner and upper side into a conical prominence (*b*). Apex of palpal organs furnished with a short, black, sinuous spine. The falciform process on the outer side at base is small, curving, and black, somewhat concealed under the radial joint (figs. 2 a, *a*, *b*, *c*, *d*, *e*).

This spider, very distinct as a species, belongs to a group of spiders which lies somewhere not far from *Tmeticus* and *Porrhomma*, but yet, I believe, distinct from them.

The high clypeus, small teeth on the fang-groove, and the single isolated tooth on the falx distinguish it from the

majority of those described under these two genera, though in some respects it resembles *T. simplex*, F. Cb.

The specimen here described, an adult male, was taken near Carlisle in 1892.

HILLHOUSIA, gen. nov.

Cephalothorax deeply excavated at base, oval-elongate; caput (female) raised, depressed in front, convex, furnished with some short curving hairs.

Eyes of posterior row situated in a straight line, equal, almost equidistant, one diameter apart. Anterior row curved, convexity backwards; centrals slightly smaller, almost one diameter apart, one diameter from laterals.

Clypeus as high as the ocular area, convex, projecting forwards.

Falces two and a half times the height of the clypeus, convex at base, attenuate and divergent at apex, furnished with four sharp teeth on the upper margin of the fang-groove.

Sternum as long as broad, flattened-convex, set with short black hairs.

Legs clothed with short hairs, devoid of spines, but tibiae of all four pairs with two erect bristles above. Femora furnished with a double row of long hairs beneath.

Abdomen thickly clothed with short hairs, exhibiting beneath, just behind the spinners, a transverse slit, the entrance to spiracular breathing-organs.

The spiders for whose reception this genus is founded are very closely allied to *Tmeticus* and *Porrhomma*. The excavation at the base of the cephalothorax, however, seems to sufficiently separate them from both these genera.

In all probability as time goes on and more examples turn up it will be necessary to form more genera for the reception of species now associated together under the same generic titles, especially in the case of the numerous puzzling species of the group Linyphini, to which these spiders belong.

Hillhousia desolans, sp. n. (Pl. I. fig. 4.)

Length of female $1\frac{1}{4}$ line.

Cephalothorax and caput dull orange-yellow, striae and margin dusky brown.

Falces yellow, fangs tinted with pink.

Sternum deep brown. Abdomen olive-green or dull black; legs pale yellow.

Epigygne conspicuous, consisting of a broad, oval, chitinous plate, wrinkled above, its posterior margin raised in the centre and furnished with a small prominence, sinuous, and raised from the abdomen.

The male, of which sex only a single immature specimen has been taken, is similar to the female; the radial joints of the palpi are very prominent, and suggest some curious development when mature.

Four adult females and a single immature male were taken by myself running in the sunshine on railings at Southwell, Notts, in July 1892.

Hillhousia turbatrix, Cb. (Pl. I. fig. 3.)

(Spid. Dor. p. 454, sub *Linyphia*.)

Length of male 1 line.

It has always appeared to me that this little spider presents features which separate it very decidedly from its near relations, and I have several times meditated forming a new genus for its reception.

The discovery of the spider last described, exhibiting the same excavation at the base of the cephalothorax, has induced me to place them both under the genus *Hillhousia*, though *turbatrix* differs considerably in not exhibiting the raised caput, but is otherwise sufficiently similar.

No figures of *turbatrix* having, I believe, been published before, I take this opportunity of supplying them.

The spiders, adult males and females, were taken by myself in Hyde Bog, Dorset, in 1888. The type specimens, also taken in Dorset, were kindly forwarded for my inspection by the Rev. O. Pickard Cambridge, and from these the figures published with this paper were taken.

GENUS MICRONETA.

Microneta clypeata, sp. n. (Pl. I. fig. 5.)

Length of adult male 1 line.

Cephalothorax circular-oval, convex, narrowed in front, dull yellow, veined with brown, with central and lateral striae of the same hue; marginal line dark brown.

Eyes small, very close together: posterior row equidistant, half a diameter apart, slightly curved, convexity backward, centrals very slightly larger; anterior row straight or nearly so, centrals smaller, almost in contact, one half a diameter from the laterals.

Clypeus more than twice as high as the ocular area, concave, anterior margin prominent.

Falces scarcely as long as clypeus, weak, straight, abruptly attenuate at apex, *i. e.* emarginate on inner side. Inner angle with a few short hairs, but no teeth. Fang circular, weak.

Sternum as long as broad, convex, set with short hairs, and granulose.

Legs 4, 1, 2, 3, short, without spines, clothed with fine short hairs, dull yellow; femora with a few long hairs beneath near apex; genital joint with a fine bristle; tibiae with two short, fine, erect bristles on upperside; metatarsi i. and ii. suffused with dusky black.

Abdomen dull black, elongate-oval, clothed with fine hairs.

Palpus of male short, digital joint and organs large. Digital sheath produced into a fine point at base above, which curves downwards on the inner side, its upperside conical and slightly concave on the outer side. Cubital joint globular, with a short bristle at apex above.

This small species is very closely allied to *conigera*, Bl., and *innotabilis*, Cb., but the great height of the clypeus will serve to distinguish it from the latter, while the large conical prominence on the palpi of the former will prevent any confusion with it.

A single adult male was taken in Newtown Moss, Penrith, in April 1893, by the author.

Genus BATHYPHANTES.

Bathypantes setiger, sp. n. (Pl. I. fig. 6.)

Length of male 1 line.

Cephalothorax dark mahogany-brown, deepening towards the margins; caput slightly raised, ocular area prominent. *Eyes* of posterior row straight or nearly so, equal, centrals one diameter apart, one and a half from the laterals; central anteriors smaller, one diameter apart, two diameters from the laterals.

Clypeus scarcely as high as the ocular area, directed obliquely forward.

Falces (male) stout, mahogany-brown, attenuate, and divergent towards apex, bearing two or three stout teeth on the inner margin near the middle; (female) stout, parallel-sided, not divergent or attenuate.

Sternum longer than broad, dark dusky brown, set with short black hairs.

Legs pale orange-yellow, apex of each joint slightly tinged with dusky brown. Femora of all four pairs without any spines: genual joints with a single fine short spine at apex. Tibiæ i. and ii. with three spines towards apex—one dorsal, two lateral, and a dorsal one towards the base; iii. and iv. with two dorsal ones only.

Abdomen dull black; dorsal area towards spinners paler, bearing in the female a very indistinct, pale, scalloped band down the dorsal area, becoming obsolete before the spinners.

Palpi.—Humeral joint yellow, slender; cubital convex, with a single short bristle in front at the apex. Radial joint broader, short, convex, furnished with a few stout bristles and hairs directed forwards. Digital joint large. Palpal organs furnished at apex with a stout spiraliform black spine having within its circumference a short, curved, black spur; also a semitransparent plumule. The falciform process, on outer side near the base, exhibits near its apex a stout black spine, composed of three closely applied separate spines. This spine is best seen from in front, but was very apparent in some specimens which had become accidentally dried. The apex of the black spine will be seen directed upwards and outwards from the outer side of the organs near the base, and will be quite sufficiently evident for identifying the spider.

Epigyne transverse-oval, convex, presenting a short, central, tongue-like prominence, flanked on either side by a deep concavity, its margin slightly sinuous. From the centre of the posterior margin extends a small dilated process, curving slightly upwards from beneath the apex of the tongue-like process.

Three males and two females of this small but very distinct little species were taken by myself in Newtown Moss, near Penrith, in April 1893. Spiders of all kinds were very scarce, this species being the only one adult.

This small spider most resembles *B. nigrinus*, Bl., and is also very similar to *B. parvulus*; the much smaller size, however, will enable it to be distinguished from the first, while the difference in the form of the falciform process of the palpal organs will prevent the males being confused with either of them or with *gracilis*, Bl. These four spiders differ from others of the genus in possessing a stout circular spine surrounding the apex of the organs. For figures and descriptions of *B. parvulus* and *B. nigrinus*, see 'Ann. & Mag. Nat. Hist.' ser. 6, vol. x., Nov. 1892.

Both sexes of setiger may, however, be most easily recognized by the total absence of spines on the femora of all four pair of legs.

The female may still further be recognized by the form of the epigyne, the central prominence being shorter and less stout than in *nigrinus*, but longer than in either *parrulus* or *gracilis*. The falciform process exhibits three long spines near the apex, two about the centre on the inner margin, and three or four nearer the base; *nigrinus* exhibits much the same arrangement, but the apex of the process is not *spatuli-form*, as in the present species; while the spines in *parvulus* are set in a regular row round the inner margin, and this portion of structure is in *gracilis* more circularly curved, and the spines are not nearly so numerous or so stout, being, in fact, merely bristles.

Genus LEPHTHYPHANTES.

Lepthyphantes Whymperi, sp. n. (Pl. I. fig. 1.)

Length of male $1\frac{3}{4}$ line.

Cephalothorax elongate-oval, pale orange-yellow, with black marginal line. Central line bearing a row of stiff hairs directed obliquely forwards. Caput narrowed, convex, not raised nor prolonged, bearing a central row and two lateral rows of short black curving hairs. Ocular area prominent, with some short, stiff, incurving hairs.

Eyes set on black spots: posterior row straight, equal, centrals one diameter apart, one diameter from laterals; anterior row straight, or nearly so, centrals smaller, one quarter a diameter apart (almost in contact), one full diameter from laterals.

Clypeus one quarter higher than ocular area, directed obliquely forwards.

Fulces two and a half times as long as clypeus, not very stout, attenuate and divergent at apex, bearing a stiff bristle on the inner side in front.

Fang-groove furnished with three stout, conical, separate teeth on the upperside.

Sternum slightly longer than broad, yellow-brown, set with long erect hairs.

Legs long, pale yellow, inclining to orange-red towards the terminal joints. Femora i. with a single stout spine towards apex on inner side; others without any; exhibiting long fine hairs beneath. Genual joints bearing a single spine at apex; tibiæ with two or more dorsal spines and a few lateral spines towards apex.

Abdomen glossy black, set with short black hairs in front and some very fine grey pubescence.

Palpus very characteristic. Humeral joint clavate; cubital as long as broad, convex, prominent in front, bearing at its apex a single, stout, sinuous spine, tapering to a fine point, and directed forwards over the base of the digital joint. Radial joint broader in front, produced beneath on the outer side into a blunt spur.

Digital joint produced at base into a dark spur, hollow beneath, terminating in a little rounded cariniform prominence (Pl. I. fig. 1 d, b). The falciform process is immensely developed, forming a huge concave process, its lower spur deeply bifid and extending outwards and upwards. The palpal organs themselves present some complex black processes, variously curved and pointed, with a more conspicuous, stout, circular black spine at their apex (Pl. I. fig. 1 a, a).

A single adult male of this fine species was captured on the summit of Ben Nevis in the autumn of 1892 by Mr. Edward Whymper, and kindly forwarded me by Mr. R. I. Pocock, of the South Kensington Museum.

It is a very interesting species, approaching as it does very closely to the genus *Taranucnus*, Sim.

The straight posterior row of eyes, however, prevents it entering that genus as at present characterized, although the length of the legs, the form of the cubital joint with its spine, and the structure of the palpal organs render it difficult to separate it.

I have great pleasure in connecting Mr. Whymper's name with this handsome spider. Ben Nevis, Scotland; autumn, 1892.

Genus PORRHOMMA, Simon.

This genus *Porrhomma* may be considered as forming a convenient "refuge for the destitute" for those spiders whose characters seem to place them intermediate between *Lepthyphantes* on the one hand, and *Tmetiscus* on the other; and of these it may be noted that *P. cavicola*, Sim., and *P. errans*, Bl., by the possession of a single metatarsal spine approach the former genus, while *P. adipatum*, L. K., and *P. montigena*, Sim., incline towards the latter.

I have lately been enabled, by the courtesy of various collectors, to examine specimens, in many cases the original types, of a number of somewhat obscure species, variously characterized under the generic names *Linyphia* and *Nerione*, all of which appear to be more naturally included under the genus *Porrhomma*, and some of which certainly do not differ specifically *inter se*.

Of these the most noticeable will be *L. errans*, Bl., *L. oblonga*, Cb., *L. decens*, Cb., *L. microphthalma*, Cb., *L. incerta*, Cb., and *N. pygmaea*, Bl. And since considerable doubt has from time to time arisen as to the exact identity of some of these, it has been my purpose to endeavour in this paper to clear up the confusion as far as possible.

The question was first raised by Mr. Campbell, of Hoddesdon, who suggested that *L. oblonga*, Cb., and *L. errans*, Bl., were really one and the same species, basing his opinion on the presence of forms which he believed to be intermediate between the two, and not to be distinguished from either.

The Rev. O. Pickard Cambridge has, on the other hand, always maintained the validity and distinctness of these two forms, and some months ago suggested to me a careful examination of all the forms taken by Mr. Campbell, as well as his own specimens. His suggestion has been followed with the result that the distinction of *oblonga* and *errans* has been confirmed, but that a third species has been discovered amongst those named *errans*, which has hitherto been quite overlooked. A fourth type has also been distinguished as a separate species, which was looked upon by Mr. Campbell as a link between *errans* and *oblonga*.

A further difficulty of course presented itself in attempting to ascertain which of these species was the original *errans* of Blackwall.

The unravelling of the matter has been so interesting that I cannot refrain from shortly tracing the steps, more especially as I would like to fully justify my conclusions, since they differ somewhat from those of Mr. Campbell, to whom I am indebted both for the material and for the necessary stimulus required to set me to the task.

I must confine my remarks to those specimens labelled *errans*, taking it for granted for the time being that *oblonga* is a distinct species.

Three separate collections have been placed in my hands for examination, including the original types of Mr. Blackwall's *errans*, as well as specimens named by him in the possession of Dr. Meade, of Bradford.

The first collection received was a magnificent series sent me by Mr. F. Maule-Campbell, of Hoddesdon; the second, a smaller number, from the Rev. O. Pickard Cambridge; and, lastly, two tubes from Dr. Meade, of Bradford.

Of the numerous specimens, upwards of two or three hundred, in Mr. Campbell's collection, I found adult females of *L. oblonga*, Cb., and one adult male; numerous adult

males and females of the two forms hitherto regarded as *L. errans*, Bl., with the exception of one of the forms, of which no adult males appeared, curiously enough, in Mr. Campbell's collection, though there were plenty of females; and a single female of the form I hold to be intermediate.

The second collection contained specimens of *L. oblonga*, Cb., females; specimens of both forms of *errans*, including one adult male of those in collection number one, whose males were *there* conspicuous by their absence, and also four females, the original types of Mr. Blackwall's *errans*, described in 'Spiders of Great Britain and Ireland.'

Lastly, I received from Dr. Meade two tubes containing specimens seen and named by Mr. Blackwall himself as far back as 1860, just before his magnificent work was published.

With all this valuable material so generously submitted to me I have had little difficulty in disentangling the matter and ascertaining exactly what was the original *errans*, Bl., and which of the forms before me were identical with it.

In both Mr. Campbell's and my uncle's collections I observed the same two apparently distinct forms of *L. errans*, Bl.

So, also, when I came to Dr. Meade's spiders I found two tubes, both marked *N. errans* (one, however, with a label "from coal-pits"), named by Mr. Blackwall himself; and in these two tubes I recognized the same two different species accurately separated and yet labelled with the same name.

Through the kindness of Dr. Meade I have been enabled to peruse several very interesting letters bearing on the contents of these two historic tubes, written by Mr. Blackwall; and I am now in a position to show how it came about that the two, though evidently recognized as distinct, were not regarded as different species, and also to declare which of the two tubes contains the original *N. errans* of Blackwall.

It seems that Dr. Meade had already sent specimens to Mr. Blackwall which were named *N. errans*. Subsequently he received from Mr. Morison some small spiders from Pelton Coal-Pits, Durham, which he also sent on to Mr. Blackwall, expressing his opinion that they were different to the others.

I quote extracts from the correspondence which will show exactly how the matter was settled.

In a letter dated February 22, 1860, Mr. Blackwall says,

“Herewith I return Mr. Morison’s letter and the two minute spiders . . . After a careful examination I am inclined to believe they constitute a variety of *Neriene errans*, the palpi and palpal organs of the male being perfectly identical in structure with those of that species.”

In another letter of February 27th he says: “The *Neriene* from the Durham collieries differs from *N. errans*, as you remark, in the colour and markings of the abdomen, I hope you may be able to satisfy yourself that it is a distinct species, and will speedily publish a description of it, for its habitat and economy are certainly very remarkable.”

Later, under the date of March 6th, speaking of the same spiders, he says: “. . . which I entirely concur with you in regarding as constituting a variety of *Neriene errans*, the slight difference in colour being caused in all probability, as you remark, by the influence of the remarkable situation in which they are found.”

It is very evident from this interesting correspondence that Dr. Meade tried hard to find some structural difference between the specimens obtained in the colliery and those named previously *errans* by Mr. Blackwall; and thus it happens that the former were placed in a separate tube, both as a “variety of *errans*” and also as “occurring in coal-pits.”

But it now also happens that the two species which are evident amongst Mr. Campbell’s specimens of *errans* and those of the Rev. O. P. Cambridge correspond exactly with these two varieties, and, further, that I have myself found a distinguishing character which Dr. Meade might have considered a sufficient one to found a species on had he happened to notice it. I feel myself justified, then, in describing this form “from coal-pits,” and those identical with them from the other collections, as a distinct species; while it follows of necessity that the others are the original *errans*, Bl.; for it may be further noted that these others are also identical with the four females constituting the only surviving type specimens of Mr. Blackwall’s *errans*.

The following analysis will present the conclusion more clearly:—

Dr. Meade's collection :

1. Abdomen dull, unicolorous; no spines on metatarsi. From coal-pits *P. Meadii*, F. Cb.
2. Abdomen olive-green; spines on metatarsi. *P. errans*, Bl.

Mr. Campbell's collection :

1. Abdomen dull; no metatarsal spines *P. Meadii*, F. Cb.
2. Abdomen olive-green; spines on metatarsi. *P. errans*, Bl.

Mr. Blackwall's types :

Abdomen olive-green; spines on metatarsi. *P. errans*, Bl.

Rev. O. P. Cambridge's collection :

Examples of both species.

There is now the further question as to the identity of *P. oblonga*, Cb., with *P. errans*, Bl., or the distinctness of them as different species. Mr. Campbell had been greatly puzzled, when examining his specimens, by the real or apparent variation in the position of the eyes in specimens which, judging by other characters, might have been regarded as the same species.

After much careful examination my own conclusion is this: that though it is not at all improbable that there may be considerable instability in the position of the eyes even amongst spiders otherwise similar, and though I have been compelled during my arachnological studies, as have many others before me, to conclude that such is really the case, and that in all probability the forms have not yet become fully, ultimately, and specifically differentiated, yet that, with regard to these particular examples, such a view is not wholly tenable.

I have no hesitation in saying that the apparent difference in the distances between the eyes is due in a vast number of, perhaps all, cases to the shrinking and falling away of the tissues and pigment-cells from the exoskeleton.

According to my experience this always has the effect of exhibiting the outline of the lenses of the eyes more distinctly, and making them appear further apart than when the pigment-cells are present. For instance, the eyes of a pale, young, diaphanous specimen always appear further apart than those of one in which the pigment-cells are rich and well-developed; and if the eyes of a cast-off cephalothoracic skeleton be compared with those of one in the normal condition, the truth of this statement will be perceived.

And although I am prepared to maintain that, amongst the smaller species at any rate, specific characters constantly melt

away in the presence of individual instability, and even generic barriers are broken down by a hopeless want of uniformity and exclusiveness in the distinguishing characters, yet I cannot go quite so far as to agree with Mr. Campbell on the advisability, in this particular case, of uniting all these apparent varieties under one name, *errans*, Bl.

He says*: "The oblong form of *L. oblonga*, Cb., is found with the typical eyes of *L. errans*, Bl., and the more ovate form of *errans* with the typical eyes of *oblonga*."

After careful comparison I am not able entirely to confirm this; in all probability the oblongation of form, or otherwise, is due in some measure to the state of the ovaries and liver at the time; and in all cases where there seems to be this cross-characterization I find that the falling away of the tissues from the skeleton will fully account for the apparently greater separation of the eyes in the "more ovate" forms.

One single specimen, however, an adult female, certainly exhibits this ovate form, coupled with eyes distinctly wider apart than those of the typical *errans*; but these characters are supplemented by a greater height of clypeus than exists in either *oblonga* or *errans*; and I have therefore deemed it advisable to describe it as a distinct species, *P. Campbellii*, rather than regard it as a link enabling us to unite the three forms as a single species under the name *errans*, as Mr. Campbell has suggested.

The species may be conveniently distinguished as follows:—

Porrhomma.

Males.

A. Femora without any spines.

- i. Radial joint produced into a large concave, curved process, directed over the base of the digital joint *P. montigena*, Sim.
- ii. Radial joint not produced *P. adipatum*, L. K.

B. Femora i. and ii. with one or more spines.

- i. Metatarsi without any spines.
 - a. Anterior row of eyes straight; eyes larger. (Femora i. with two spines, ii. with one about the middle.)
 - a*. Clypeus not higher than the ocular area.

- 1. Central anteriors decidedly smaller than laterals, distant from them almost two diameters *P. Meadii*, F. Cb.
 (*L. decens*, Cb.)
 (*L. microphthalmia*, Cb.)
 (*L. incerta*, Cb.)

* "Spiders of Hertfordshire," Trans. Hert. Nat. Hist. Soc. vol. ii. pt. 7, 1883, p. 269.

2. Central anteriors scarcely smaller than laterals, scarcely one and a half diameters from them *P. pygmaeum*, Bl.
- b**. Clypeus distinctly higher than ocular area *P. Campbellei*, F. Cb.
- b.* Anterior row of eyes strongly curved, convexity forwards: eyes of both rows very small and wide apart; central posteriors two diameters apart, four from laterals.
1. Femora i. with two spines, and ii. with one spine *P. myops*, Sim.
2. Femora i. with one spine only towards the apex; none on the others. *P. oblongum*, Cb.
- ii. Metatarsi of all four pairs with a single stiff oblique bristle near the base above. *P. errans*, Bl.

Females.

1. Epigyne not produced *P. montigena*, Sim.
2. Epigyne produced into a long ovipositor-like process *P. adipatum*, L. K.

Note.—The females of the other species may be easily distinguished by the characters given for the males.

Porrhomma errans, Blackw. (Pl. II. fig. 1.)

(*N.* and *L. errans*, Bl. & Cb.)

Length of male 1 line; female $1\frac{1}{2}$ line.

Cephalothorax and *legs* similar in colour to those of *Meadii*, and also in other general respects.

Eyes.—Posterior row straight, centrals one diameter apart, two diameters (or almost) from laterals; anterior row straight, centrals scarcely smaller than laterals, one and a half (or scarcely) diameters from laterals, one half from each other.

Legs.—Femora i. with two spines, sometimes three, one (or two) on the upperside and one on the inner side, towards the apex; ii. with one near the centre. Metatarsi i., ii., iii., iv. bearing a stout oblique spine on the upperside near the base.

Falces, maxilla, and *sternum* similar to those of *Meadii*.

Abdomen pale olive-green, clothed with short, stiff, curving hairs; dorsal area with some pale spots and lines in front, also three or four transverse sinuous pale bars towards the spinners.

Epigynal aperture similar to that of *Meadii*, but outline less bold, not so dark nor so conspicuous, and, perhaps, a little less circular, more transverse-oval in form.

This species, while readily distinguishable from *Meadii*, *oblongum*, and *pygmaeum* by the single metatarsal spine, yet in

general appearance very much resembles both the first and the last.

The palpal organs present some decided differences; the point, *e*, is not so sharp or prominent; the falciform process, *a*, is broader and more circularly curved; the spines at the apex of the organs are not the same. (See Pl. II. fig. 1 a.)

The epigynal orifice is, as far as I am able to ascertain, almost always transverse-oval, never quadrate, as is that of *Meadii*.

The central anteriors are not so small in proportion, while the spine, mentioned above on the penultimate joint of all four pairs of legs, will prevent any confusion.

The pale broken transverse lines on the pale olive abdomen will prove a really reliable character.

Upwards of 250 of the female sex were received from Mr. Campbell, but no males. A single male was found amongst the Dorset specimens; while both males and females were received from Dr. Meade, in addition to the four original types, females, from Mr. Blackwall's collection.

All these specimens seem to have been taken either running upon railings or amongst grass in March and April; and a very interesting account of them is given by Mr. Campbell in 'Trans. Hert. Nat. Hist. Soc.' 1883, vol. ii. pt. 7.

Porrhomma Meadii, sp. n. (Pl. II. fig. 2.)

(Sub *Neriene errans*, Blackw.)

Lymphia microphthalmia, Cb. Spid. Dor. p. 523.

L. incerta, Cb. Spid. Dor. p. 205.

L. decens, Cb. Spid. Dor. p. 217.

Length of male 1 line; female $1\frac{1}{2}$ line.

Cephalothorax oval-elongate; caput bluffly rounded, bearing a longitudinal row of curved hairs.

Eyes fairly large: posterior row straight, centrals one diameter apart, two diameters (or almost) from laterals; anterior row straight, centrals smaller, half a diameter apart, two diameters (or almost) from the laterals. Clypeus as high as ocular area, vertical, set with short hairs.

Legs fairly long: femora i. with one spine on inner side and one spine on upperside, towards apex; ii. with one spine about the middle; iii. and iv. without spines. Femora clothed beneath with a double row of long setiform hairs, the pair at the apex being longest and stoutest. Genual joints with a long (three times diameter of joint) oblique spine at the apex.

Tibiae i. with three long spines at apex (one dorsal, two

lateral) and one dorsal spine at base. *Tibiae* ii. with two dorsal spines and one lateral one at apex on posterior side; iii. and iv. with two dorsal spines, one at base, the other at apex.

Metatarsi without any spines.

Falces three times as long as the height of clypeus, stout (in male slightly attenuate and divergent at apex); basal joint presenting no external striæ, but some small setigerous granulations towards apex; with two separate setiform hairs on inner side in front of each joint. Upper margin of fang-groove bearing two stout sharp adjacent teeth; lower margin with four or five small teeth.

Sternum rather longer than broad, slightly convex, set with short hairs.

Abdomen dull olive-green, clothed with short fine hairs, but with *no transverse pale lines and spots*.

Palpus of male slender; digital joint and organs conspicuous, the latter bearing on the outer side a large curved falciform process, its apex very slightly bilobed; and at the apex of the organs a dark black, curving, multiplex spine. (Pl. II. fig. 2 a.)

Epigyne of female presenting a very distinct, deep concavity, circular or almost square, and truncate at the posterior margin. The spermathecae and ducts are conspicuous above the orifice.

This species can very easily be distinguished from *pygmaeum* by its larger size, by the different form of the palpal organs, and by the greater distance of the anterior centrals from the laterals; from *oblongum*, Cb., by the spines on femora ii.; from *errans*, Bl., by the absence of spines on the metatarsi, and the unicolorous dusky abdomen.

Taken abundantly, of both sexes, at Hoddesdon, in Hertfordshire, by F. M. Campbell, Esq., and at Bloxworth, Dorset, by the Rev. O. Pickard Cambridge. Adult in April and May. Males and females were sent to Dr. Meade from Pelton coal-pits, near Durham, in 1860. They seem to have been conveyed down the shaft amongst the horse-fodder. Once there, they became gregarious and formed a huge web on a co-operative understanding, with a joint-stock spinning industry. Dr. Meade gives a most interesting account of the habits and circumstances of the capture of these spiders in the 'Zoologist' for August, 1860, no. cexix.

Porrhemma oblongum, Cambr. (Pl. II. fig. 4.)

(*Linyphia oblonga*, Cb.)

Length of female $\frac{3}{4}$ -1 line; male smaller.

Cephalothorax elongate-oval, parallel-sided, pale straw-yellow; caput bluffly rounded in front, clothed with short hairs.

Eyes very small: posterior row straight, centrals one and a half to two diameters apart, three diameters from the laterals; anterior row strongly curved, centrals very small, one diameter apart, three diameters (or nearly) from the laterals. (Absence of pigment will seem to increase the space of separation by half.)

Clypeus one quarter higher than the ocular area. *Falces* similar to those of *errans*, stout, with two isolated teeth towards the apex and some smaller ones behind.

Sternum a little longer than broad, convex, terminating between the posterior coxæ in a conical point.

Abdomen elongate, parallel-sided, white or pale yellow, sometimes, especially in freshly-caught specimens, dull olive-green, with pale blotches and four or five transverse pale lines above spinners; clothed with short curving hairs, transversely wrinkled above spinners at apex.

Legs slender, long, dull yellow-white, 4, 1, 2, 3, clothed with short hairs.

Metatarsi shorter than tibiæ, bearing no spines. *Femora* i. with a single spine on the inner side towards apex; ii., iii., iv. without any spines. *Tibiæ* of all four pairs armed with two spines on the upperside, one near the base, the other towards the apex. *Genual joints* with a single long obliquely-erect spine at apex. All four pairs clothed beneath with a double row of long setiform hairs on the underside, the pair at the apex being the longest.

Palpus of male very similar in general respects to that of *pygmæum*, Bl., and *errans*, Bl.

Cubital joint bearing a fine bristle at apex; radial with several long bristles directed over the digital joint. Palpal organs present a stout falciform process at the base on the outer side (Pl. II. fig. 4 a, a); beneath the globulous mass forming the organs are a pair of flat curving pieces; at the apex of the organs appears a stout conical spur, while a fine curved spine lies near it, crossing two other oppositely curving spines, and hence being very similar to *pygmæum*.

The *epigyne* appears as a small transverse-oval cavity, very similar to that of *Meadii* and *errans*; but I am unable to point out any real tangible difference.

About forty females of this curious species were submitted to me by Mr. Campbell, together with a single adult male, this being the first record of this sex yet published. A few females were also forwarded to me by the Rev. O. Pickard

Cambridge taken in Dorset; but all of them were small specimens and absolutely devoid of colour.

They are very distinct from any other species of *Porrhomma* hitherto taken in England, though closely allied to *egeria*, Sim., *proserpina*, Sim., *myops*, Sim., and others, characterized by the minuteness of the eyes and their great distance apart.

The single spine on the femora of the first pair in *oblongum* will distinguish it from any of these continental species; while this character and the smallness of the eyes, set very wide apart, distinguish it at once from all other British species of the genus. The more ovate, or more elongate, form of the abdomen seems to me to depend upon the state of the ovaries, and not to be too absolutely relied on for purposes of identification.

Taken at Hoddesdon, Hertfordshire, in April and May by Mr. Campbell, and at Bloxworth, Dorset, by Rev. O. P. Cambridge, and kindly forwarded for my inspection.

Porrhomma pygmaeum, Blackw. (Pl. II. fig. 3.)

(Sub *Neriene*.)

Length of male 1 line.

Cephalothorax deep red-brown, sometimes paler, smooth; caput bluffly rounded; not very convex; clypeus as high as the ocular area, rather closely set with short erect hairs.

Eyes.—Posterior row straight; centrals one diameter apart, one and a half from laterals; central anteriors one half diameter apart, one diameter from laterals, scarcely smaller than laterals.

Falces three times the length of the clypeus, convex at base, slightly attenuate towards the apex, bearing two conical teeth on inner angle and a third less conspicuous.

Sternum dark, convex, shiny.

Legs orange-red, dull. Femora i. with two spines, one in front at apex, another on inner side a little above middle; ii. with one about the centre of the joint. Tibiæ similar to those of *errans*.

Metatarsi with no spines at all.

Abdomen varying from deep black to olive-green, clothed with short curving hairs.

Palpus of male orange-red, dull; cubital joint short, convex, one very fine hair in front at apex. Radial joint broad, rounded in front, bearing a fringe of long curving hairs along the interior margin; exterior angle bearing two longer more conspicuous curved hairs.

Palpal organs bearing usual falciform process on outer side at base; apex of organs on inner side exhibit two short stout spines, curving slightly towards each other, while a third springs from near the base of the upper of these and curves round and over its apex behind. The bulb bears the usual short, conical, apical prominence common to several of the genus.

Epigyne consisting of a deep orifice, oval-triangular; anterior margin forming an angle, posterior margin slightly rounded; otherwise closely similar to those of the allied species.

P. pygmaeum is a much darker spider than any others of the genus; the eyes are nearer together and the hairs on the clypeus are more numerous. The palpal organs considerably resemble those of *oblongum* and *errans*, but the very small eyes of the former and the metatarsal spine of the latter will prevent any confusion.

This small spider does not seem to be very plentiful, but perhaps has been overlooked. It occurs, however, abundantly in and around Carlisle, running upon railings, parapets of bridges, on walls, in buildings, on the pavements, &c., in the month of April and again in October.

Dorset, Carlisle, Hertfordshire, Lancashire, North Wales, Scotland.

Porrhomma Campbellii, sp. n. (Pl. II. fig. 5.)

Length of female $1\frac{1}{2}$ line.

Cephalothorax dull orange; caput broad and bluffly rounded.

Eyes small: posterior row straight, centrals a full diameter apart, two and a half from the laterals; anterior row curved, convexity forwards; centrals smaller, one quarter diameter apart, two full diameters from laterals.

Falces rather more than twice the height of clypeus, with the usual three sharp teeth on inner anterior angle.

Legs pale yellow. Femora i. with two spines towards apex; ii. with one near the centre, iii. and iv. without any. Genual joints with a single spine at apex; tibiæ i. and ii. with three towards apex, one towards base on upperside; iii. and iv. with two on upperside, one near the base, the other towards the apex.

Metatarsi without any spines.

Clypeus scarcely once and a half as high as ocular area.

Abdomen dull sooty olive-green, with numerous pale spots.

This single female, discovered amongst Mr. Campbell's spiders and remarked upon by himself as distinct from the

others, seems to occupy a position intermediate between *myops* on the one hand, with its high clypeus, and *Meadii* on the other, with its larger eyes, more closely situate.

The caput is broader and more bluffly rounded than in *errans* and *Meadii*, while from the former it may be further distinguished by its rather smaller eyes and higher clypeus, from the latter by these characters and the absence of a metatarsal spine.

It is much larger than *oblongum*, Cb. ; its eyes are larger and closer together, and though the form of the caput is somewhat similar, yet the clypeus is much higher when compared with the ocular area than in that species.

Received from F. M. Campbell, Esq., August 1892, amongst a number of specimens of *oblongum*, *errans*, and *Meadii* taken at Hoddesdon, Hertfordshire, running on iron railings in the sunshine, in March and April 1883.

Porrhomma decens, Cb. (Pl. II. fig. 7 b.)

(Spid. Dor. p. 217, sub *Linyphia*.)

I am unable to recognize any sound distinguishing character which may separate this male specimen from *P. Meadii*. The apparent smallness of the eyes and their apparent greater distance apart are to my mind fully accounted for by the absence of pigment.

The palpal organs are similar to those of *Meadii* (see Pl. II. fig. 2 a).

A single adult male, the type specimen, which was kindly forwarded for my inspection by the Rev. O. Pickard Cambridge, was taken in Dorset in 1862.

Porrhomma microphthalmum, Cb. (Pl. II. fig. 7 a.)

This specimen also seems to me identical with *Meadii*. The palpal organs are precisely similar. The eyes, having lost a large proportion of the pigment-cells, appear smaller and wider apart (very slightly), but are not, I believe, really so. The spines on the legs, being lost, furnish no clue as to its identity.

A single adult male, the type specimen, was forwarded for my inspection by the Rev. O. P. Cambridge. Taken by the late Mr. Beck near London many years ago.

Porrhomma incertum, Cb.

(Spid. Dor. p. 205, sub *Linyphia*.)

I can find no reason for considering this female, the type of which I have carefully examined, as differing from *Meadii*. The eyes appear to be the same and there are no metatarsal spines.

Forwarded for my inspection by the Rev. O. P. Cambridge. Taken on a wall, in the month of June 1877, at Bloxworth, Dorset.

Porrhomma montigena, Sim.

(Ann. & Mag. Nat. Hist., Jan. 1891, sub *Tmeticus niger*, F. Cb.)

Porrhomma adipatum, L. K.

(Spid. Dor. vol. ii. p. 521, sub *L. reticulata*, Cb.)

Porrhomma myops, Sim. (Pl. II. fig. 6.)

A single specimen forwarded to me, together with specimens of *oblongum*, by Rev. O. Pickard Cambridge, Oct. 1892.

Rare Species observed between 1891-93.

GENUS AGRÆCA.

Agræca celans, Bl. (Pl. II. fig. 8.)

Adult females of this spider were taken by myself amongst moss on the banks in the woods at Wreay, near Carlisle, in April 1893.

No adult males were taken.

The form of the epigyne may be seen on Pl. II. fig. 8.

GENUS CRYPHÆCA.

Cryphæca diversa, Cambr.

An adult female of this species, new to science, was taken by myself, running on a rail in the sunshine, on the banks of the Caldew, on Oct. 11, 1892, near Carlisle.

The specimen was submitted to Rev. O. Pickard Cambridge, who has described and figured it in Proc. Dor. Nat. Hist. Soc. 1893.

Genus LEPTHYPHANTES.

Leptyphantes pinicola, Sim.

An adult male was taken by myself on the Cross-Fell range of hills (the Pennines) near Croglin. This is only the second locality in which it has been taken, it having previously been taken only once on Helvellyn in 1890.

Genus DECYMBIUM.

Decymbium tibiale, Bl.

Several adult males of this rare species were found in the same locality in which I had taken them two years ago and at the same time of the year.

Woods at Wreay, near Carlisle, April 23rd, 1893.

Genus TAPINOCYBA.

Tapinocyba subitanea, Cb.

A single adult male was taken by myself in an outhouse in Carlisle in September 1892.

Genus EPEIRA.

Epeira patagiata, C. K.

This species appears to be abundant along the shores of Lake Derwentwater. The webs are hung on the palings or, more often, amongst the stone walls. The colour of these spiders, like that of many others, varies considerably with the nature of the habitat, tending always, of course, to that of the surrounding objects.

Epeira alsine, Walck.

Four fine adult females of this rare species were received from Mr. L. Greening, of Warrington, Cheshire, together with numerous splendid specimens of *E. sclopetaria* of both sexes.

The former were taken at Chateris, near Cambridge, by a friend of Mr. Greening, in the autumn of 1892, when sweeping amongst the herbage in woods for beetles.

Genus LYCOSA.

Lycosa Trailii, Cb.

In crossing the Styhead Pass, from Borrowdale to Wastdale

Head, I had noticed numerous Lycosids scrambling about amongst the stones which surround the pathway. These I took to be *L. amentata*, and in the hurry of the march and in the distraction of company did not stop to identify them more certainly.

A few weeks later, however, having secured several specimens, I discovered them to be very different to *amentata*, and submitted them to the Rev. O. Pickard Cambridge, who pronounced them to be *L. Trailii*, discovered many years before in Scotland and described by himself.

Their habits are peculiar, for they seem to dwell entirely in that wilderness of loose stones, acres in extent, which lies around the base of the Great Gable Mountain. Exceedingly swift in their movements, they are very difficult to capture, for they seem seldom to venture far from the shelter of the rocks, and when once amongst the stones all further pursuit is useless.

They resemble *amentata* very much in general appearance, but are very decidedly larger, with longer legs; very black, with grey hairs.

It was a little late for them when I discovered their value, so that only twenty or thirty adult males and females were taken.

It is, however, evidently a very abundant spider, and probably inhabits the "screes" of sunny aspect throughout the whole of the Lake Districts.

Styhead Pass, June 1893.

Spiders noted, figured, or described.

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| <i>Coryphæus glabriceps</i> , sp. n., p. 87. | <i>Porrhomma Campbellii</i> , sp. n., p. 105. |
| <i>Hüllhousia desolans</i> , sp. n., p. 89. | — <i>decens</i> , Cb., p. 106. |
| — <i>turbatrix</i> , Cb., p. 90. | — <i>microphthalmum</i> , Cb., p. 106. |
| <i>Microneta clypeata</i> , sp. n., p. 90. | — <i>incertum</i> , Cb., p. 107. |
| <i>Bathypantes setiger</i> , sp. n., p. 91. | — <i>montigena</i> , Sim., p. 107. |
| — <i>nigrinus</i> , Bl., Pl. I. fig. 7. | — <i>adipatum</i> , L. K., p. 107. |
| — <i>approximatus</i> , Cb., Pl. I. fig. 8. | — <i>myops</i> , Sim., p. 107. |
| — <i>dorsalis</i> , Wid., Pl. I. fig. 9. | <i>Agraca celans</i> , Bl., p. 107. |
| — <i>pullatus</i> , Cb., Pl. I. fig. 10. | <i>Cryphæa diversa</i> , Cb., p. 107. |
| <i>Lepthyphantes Whymperi</i> , sp. n., p. 93. | <i>Lepthyphantes pinicola</i> , Sim., p. 108. |
| <i>Porrhomma errans</i> , Bl., p. 100. | <i>Decymbium tibiale</i> , Bl., p. 108. |
| — <i>Meadii</i> , sp. n., p. 101. | <i>Tapinocyba subitanea</i> , Cb., p. 108. |
| — <i>oblongum</i> , Cb., p. 102. | <i>Epeira patagiata</i> , C. K., p. 108. |
| — <i>pygmæum</i> , Bl., p. 104. | — <i>alsine</i> , Walck., p. 108. |
| | <i>Lycosa Trailii</i> , Cb., p. 108. |

EXPLANATION OF THE PLATES.

PLATE I.

- Fig. 1. Lephyphantes Whymperi*, sp. n.
 a. Left palpus of male from above. *a*, base of digital joint ; *b*, spine at apex ; *c*, cubital spine ; *d*, falciform process.
 b. Left palpus from outer side.
 c. Caput and falces from in front.
 d. Left palpus of male.
 e. Profile of cephalothorax.
- Fig. 2. Coryphæus glabriceps*, sp. n.
 a. Right palpus of male from outside. *a*, falciform process ; *b*, base of digital joint ; *c*, *e*, radial spurs.
 b. Palpus from inner side.
 c. Palpus from above.
 d. Caput and falces from in front.
 e. Inner angle of falx enlarged. *a*, isolated tooth.
- Fig. 3. Hillhousia turbatrix*, Cb.
 a. Palpus of male from outside. 1, falciform process ; 2, spine at apex.
 b. Palpus from above.
 c. Palpus, another view.
 d. Epigyne of female.
 e. Caput and falces from in front.
 f. Profile of female.
 g. Cephalothorax from above.
- Fig. 4. Hillhousia desolans*, sp. n.
 a. Profile of female.
 b. Cephalothorax and abdomen from above.
 c. Epigynal area from in front.
 d. Epigynal area from above.
 e. Caput and falces from in front.
- Fig. 5. Microneta clypeata*, sp. n.
 a. Profile of male.
 b. Cephalothorax and abdomen from above.
 c. Right palpus of male from above.
 d. Sternum, maxillæ, and falces.
 e. Caput and falces from in front.
 f. Left palpus from outside.
- Fig. 6. Bathyphantes setiger*, sp. n.
 a. Right palpus of male from above. *a*, apex of falciform process ; *b*, spiral spine at apex of organ ; *c*, plumule ; *d*, central spine.
 b. Right palpus from outer side.
 c. Falciform process. 1, spatuliform apex ; 2, group of long setæ.
 d. Falciform process, another view.
 e. Epigyne of female.
- Fig. 7. Bathyphantes nigrinus*, Bl.
 7'. Palpal organs from outer side. *a*, falciform process ; *b*, spiral spine at apex ; *c*, plumule ; *d*, central spine.
 7''. Falciform process, enlarged.
 7 a'. Epigyne of female from above. *a*, upper stylum.
 7 a''. Epigyne of female, lateral view.

Fig. 8. *Bathypantes approximatus*, Cb.

8. Palpal organs from outer side. *a*, falciform process; *b*, spiral spine at apex.

8'. Falciform process, detached.

8a'. Epigyne of female, lateral view. *a*, upper stylum.

8a''. Epigyne of female from above.

Fig. 9. *Bathypantes dorsalis*, Wid.

Palpus of male from outside. *a*, falciform process; *b*, spine at apex.

Fig. 10. *Bathypantes pullatus*, Cb.

n. Palpus of male from outer side. *a*, falciform process; *b*, apophysis with serrulate apex; *c*, spine.

b. Palpus from beneath.

PLATE II.

Fig. 1. *Porrhomma errans*, Bl. E Coll. F. M. C., R. H. M., O. P. C.

a. Palpal organs from outer side. *a*, falciform process; *b*¹, *b*², *b*³, spines on ditto; *c*, small spur at apex of bulb; *e*, basal spur of digital sheath.

b. Caput and falces from in front. Lines at side show relative height of clypeus and ocular area.

c. Epigyne of female from above.

d. Epigyne of female, lateral view.

Fig. 2. *Porrhomma Meadii*, sp. n. E Coll. F. M. C. and R. H. M.

a. Palpal organs from outer side. Small letters have the same signification as in fig. 1 a.

b. Caput and falces from in front. Lines at side as in fig. 1 b.

c. Epigyne from above.

Fig. 3. *Porrhomma pygmaeum*, Bl. E Coll. O. P. C., type.

a. Palpal organs from inner side. Small letters as above.

b. Caput and falces from in front. Lines as above.

c. Palpus from outer side. Letters as above.

Fig. 4. *Porrhomma oblongum*, Cb. E Coll. F. M. C.

a. Palpal organs from outer side. Small letters as above.

b. Caput and falces from in front. Lines as above.

c. Palpus from above. Small letters as above.

Fig. 5. *Porrhomma Campbellii*, sp. n. E Coll. F. M. C.

Caput and falces from in front. Lines as above.

Fig. 6. *Porrhomma myops*, Sim. E Coll. O. P. C.

Caput and falces from in front. Lines as above.

Fig. 7. a. *Porrhomma microphthalmum*, Cb. E Coll. O. P. C.

Palpal organs from above. Letters as above.

b. *Porrhomma decens*, Cb. E Coll. O. P. C.

Palpal organs, different views. Letters as above.

Fig. 8. *Agrawca celans*, Bl.

Epigyne of female.